



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,489	02/11/2002	Rajeev Bajaj	AMAT/6298/CPI/ECP/PJS	7429
32588	7590	01/14/2004	EXAMINER	
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050			NICOLAS, WESLEY A	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary

Application No.	Applicant(s)	
10/074,489	BAJAJ ET AL.	
Examiner	Art Unit	
Wesley A. Nicolas	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 021102. 6) ☐ Other:

DETAILED ACTION

This is in response to the response to restriction by Applicant submitted November 19, 2003. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-24 are currently pending in this application. With claims 1-9 directed to a non-elected invention.

Election/Restriction

1. Election of Group II, claims 10-24 by Applicant has been noted. Applicant did not state whether the claims were elected with or without traverse, so as such Examiner is treating the election as an election **with** traverse. Since, applicant has not provided express admission that the claimed inventions are indistinct as required by Lee, and as such, the restriction as set forth in the previous Office has been maintained. In re Lee, 199 USPQ 108 (Deputy Asst. Comm'r. for Pats 1978).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 10-18, 21-22, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Blachier et al. (U.S. 2003/0205478 A1).

Claim 10 is rejected because Blachier et al. teach a method for depositing metal on a substrate, comprising:

- providing a substrate having a seed layer disposed on a surface thereof (¶ 0008);
- disposing the substrate in an electroplating solution (¶'s 0015-0026);
- flowing at least a portion of the electroplating solution through an activated carbon filter, the at least a portion of the electroplating solution being a fluid volume sufficient to remove an amount of organic additives from the electroplating solution that is equal to a calculated rate of organic additive degradation (e.g. ¶ 0026, 0039, and 0068); and
- flowing the electroplating solution to the substrate (e.g. ¶ 0026, 0039, and 0068).

Claim 11 is rejected because Blachier et al. teach that the activated carbon filter is has an affinity for electroplating solution organic additives (¶ 0026).

Claim 12 is rejected because Blachier et al. teach of flowing an amount of electroplating solution through the activated carbon filter sufficient to remove between about 2 % and about 70 % of the degraded organic additives per day (¶ 0026: "substantially all").

Claim 13 is rejected because Blachier et al. teach of flowing an amount of electroplating solution through the activated carbon filter sufficient to remove between about 2 % and about 10 % of the of organic additives per day (¶ 0026: "substantially all").

Claim 14 is rejected because Blachier et al. teach of replenishing organic additives downstream of the activated carbon filter in an amount equal to the calculated rate of organic degradation in the electroplating solution (¶'s 0028-0030).

Claim 15 is rejected because Blachier et al. teach a method of controlling organic plating solution additive degradation in an electroplating solution, comprising passing at least a portion of the electroplating solution through at least one activated carbon filter having an affinity specifically configured for plating solution organic additives (e.g. ¶ 0026, 0039, and 0068).

Claim 16 is rejected because Blachier et al. teach that the electroplating solution is passed through the activated carbon filter at a rate sufficient to remove the plating solution organic additives from the electroplating solution in an amount equal to the rate of organic additive degradation (¶ 0026: "substantially all").

Claim 17 is rejected because Blachier et al. teach that the electroplating solution is passed through the activated carbon filter at a rate sufficient to remove between about 2 % and about 10 % of the plating solution organic additives from the plating solution per day (¶ 0026: "substantially all").

Claim 18 is rejected because Blachier et al. teach that at least one activated carbon filter is configured to remove between about 60 % and about 90 % of the plating solution organic additives passed therethrough (¶ 0026: "substantially all").

Claim 21 is rejected because Blachier et al. teach a method for removing degraded organic additives from an electroplating solution, comprising:

- capturing at least a portion of an electroplating solution stream traveling between an electroplating fluid reservoir and an electroplating deposition cell (e.g. ¶ 0026, 0039, and 0068), and
- then flowing the portion of electroplating solution through an activated carbon filter having an affinity for plating solution organic additives (e.g. ¶ 0026, 0039, and 0068).

Claim 22 is rejected because Blachier et al. teach of flowing a portion of the electroplating solution through the activated carbon filter in an amount sufficient to remove an amount of plating solution organic additives from the electroplating solution equal to a calculated rate of organic additive degradation (¶ 0026: "substantially all").

Claim 24 is rejected because Blachier et al. teach of replenishing organic additives downstream of the filter in an amount equal to the calculated rate of organic degradation in the electroplating solution (¶'s 0028-0030).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 19-20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blachier et al. (U.S. 2003/0205478 A1) as applied to claims 15 and 21 above, and further in view of Nabekura et al. (U.S. 2001/0042688).

Blachier et al. are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach the flow percentage of solution through the filter, and the amount of additives removed less than "substantially all."

Nabekura et al. teach of an activated carbon filter for filtering electrolyte where the amount of material in the filter determines the amount of filtration (*i.e.* ¶'s 0014-0017).

Regarding claims 19-20 and 23, it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Blachier et al. to adjust the amount of flow through the filter, and the amount of additives removed as taught by Nabekura et al. because Nabekura et al. teach that one of ordinary skill would have routinely modified the amount of flow and filtration by adjusting the filter type so as to easily tailor the filter to the particular process (*i.e.* ¶'s 0014-0017).

With respect to the parallel filter configuration claimed in claim 20, it would have been obvious and within the ordinary skill in the art at the time the invention was made to have used multiple filters in parallel because it is well known that mere duplication of parts has little patentable significance unless new and unexpected results are produced.

In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). In this case,

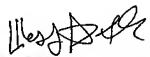
one of ordinary skill in the art would have routinely added another filter in parallel to increase filtration capacity and/or provide for redundant systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley Nicolas whose telephone number is (571) 272-1247. The examiner can normally be reached on Mon.-Thurs. from 7am to 5pm.

The Supervisory Primary Examiner for this Art Unit is Roy King whose telephone number is (571) 272-1244.

The fax number for this Group is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.


WESLEY A. NICOLAS
PATENT EXAMINER

January 8, 2004